

## The Published Works of the Meiji era Educational Advisor Henry Dyer : Themes and Characteristic

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### I. Themes and characteristics of Dyer's works

Henry Dyer was a man of many parts. As far as Japan was concerned, he was a foreign educational advisor, a promoter of Japan/United Kingdom relations, and a Japanologist (one who studies Japan and all things Japanese).

Initially, he arrived in Japan from Scotland at the invitation of the Meiji Government, where he was employed from 1873 to 1882 as principal of the Imperial College of Engineering, Tokei (an alternative pronunciation of Tokyo used during the early Meiji period), and later as a teacher in civil and mechanical engineering. In this capacity Dyer made substantial contributions to the development of the foundations of specialist engineering education in Japan.

In addition, after completing his term as a foreign educational advisor in Japan and returning home, Dyer maintained close ties with contacts in Japan and contributed significantly to Japan/United Kingdom relations. In his role as the Meiji Government's Financial and Industrial Liaison of the Japanese Empire, Dyer was the author of many essays on Japan as well as public relations materials. He also provided active support to the study and the life of Japanese students studying in Glasgow. Another notable fact about Dyer is that his descendant donated to libraries and other centers the specimens of folk and fine art that he brought back from Japan in the hope that viewing the "Dyer Collection" would better acquaint people with the country.

Also, Dyer was a prolific author in and well known proponent for all things Japanese. Having contributed to Japan's modernisation as a foreign educational advisor, upon his return to the United Kingdom Dyer became a lover and a student of Japan and its artifacts, making full use of his interest in, and continued contact, with the country. His pro-Japanese stance<sup>1</sup> is readily apparent in his great works such as *Dai Nippon* and *Japan in World Politics*<sup>2</sup>.

That said, Henry Dyer's lifework was not limited to the three Japan related roles noted above. In his native Glasgow, he developed an interest in educational and societal issues and became a vocal proponent of reforms in both areas. In the field of education, he became a trustee of Anderson's College, and a member and then chairman of the Glasgow School Board, where through his written works and lectures on contemporary social issues he helped shape opinion in the areas of church reform and the labor movements. Transcripts of his lectures were distributed in pamphlet form. Selected articles that Dyer published in newspapers

and magazines were eventually compiled and published as separate volumes.

As well as being active in a number of different causes, during his lifetime Dyer left behind a large body of work. In the recently-published *Oxford Dictionary of National Biography*, for example, he is noted as a “prolific writer”.<sup>3</sup> For these reasons alone, any in-depth study of Henry Dyer must include an understanding of this large body of work.

Interest in Dyer among historians has grown, and a preliminary catalogue of Dyer’s works has been created to serve as a basic foundation for research.<sup>4</sup> Since surveys of Dyer’s works in Japan and abroad initially began in 1975, this author has worked to expand his canon of documented writings.<sup>5</sup> In fact, if one were to collect Dyer’s writings and list them by categories such as “books/booklets” and “scholarly articles/essays”, we would end up with a list very similar to that shown in Appendix I “List of Henry Dyer’s Works”. As far as this author knows, Dyer wrote 42 pieces that would be considered books or booklets, and 70 articles of analysis or opinion for newspapers and magazines.

The list presented comprises those published works which the author has been able to physically confirm in the course of his study. Works which have not been widely published, including the treatise for which he was awarded the Watt Prize, his lecture notes, his correspondence,<sup>6</sup> and his comments<sup>7</sup> and lectures<sup>8</sup> recorded in such forums as the *Transactions of the Institution of Engineers and Shipbuilders* and the *Minutes of Proceedings of the Institution of Civil Engineers*, to which he was a frequent contributor, are not included here.

In all likelihood, there are other articles and letters in magazines and newspapers that have yet to be identified. In a bibliographical pamphlet [9 – No. 9 in the Appendix I] Dyer himself compiled for his application in 1886 for a professorship in Naval Architecture and Marine Engineering at the University of Glasgow, he wrote, “In addition to these, I have published anonymously in scientific journals and newspapers, a large number of articles on engineering and general scientific subjects, including reviews of the most important books which have appeared in recent years.”<sup>9</sup>

A catalogue<sup>10</sup> written by Dyer of his own works was discovered in the Dyer Collection at the Mitchell Library in Glasgow. It cites a total of 89 works listed by year from 1877 to 1916, but it also includes some handwritten addenda. For example, in the entry for 1896, he adds, “Numerous papers in [sic] *Engineering*, *Co-op News*, *The Scottish Co-operator*, *Glasgow Herald* etc.” In the entry for 1912, he likewise comments as follows: “Many articles in *Engineering*, *Glasgow Herald*, *The Scottish Co-operator* during every year.”<sup>11</sup> If one were to conduct a meticulous survey of these periodicals to identify Dyer’s contributions, the number of

documented articles by Dyer would undoubtedly rise substantially.

Dyer truly was a prolific writer, leaving behind a great number of works. If we look at Appendix I “List of Henry Dyer’s Works”, we notice several themes and characteristics.

First, the subject matter generally falls into one of the following categories: reforms that address educational problems, reforms that address social problems, issues related to Japan, for example reports on activities at the Imperial College of Engineering, edited records from the college (*Calendar, Imperial College of Engineering* and reports), and academic research in the field of engineering.<sup>12</sup>

Second, if we categorize the subject matter into five general categories, namely research into educational reforms, research into social reforms, studies on Japan, research into engineering education and engineering research, and look at Dyer’s works by year of publication, a striking trend emerges.

Before that, however, let us take a cursory look at thematic trends in Dyer’s listed works overall. At 56 articles, his studies in educational reforms far outweigh other issues covered. This is followed in number by 19 articles on research into social reform, and 15 articles in engineering research. Japan-related articles also number just 15, a relatively small number.

Nevertheless, a thematic progression is evident when one tries to associate the topics of these publications with different stages in Dyer’s career. For example, when he was in the employ of the Meiji Government as an educational advisor, Henry Dyer published works related to the administration of and education at the Imperial College of Engineering. After returning to his native country, most of his initial writings were academic articles on studies in engineering, though he eventually began to write more on educational and social reforms. In the final years of his life, which overlapped with the turn of the century, he successively published numerous findings in the field of Japanology, which, together with his work on social reforms, formed the focus of his later work. This trend is shown in Appendix II “List of Henry Dyer’s Works by Topic and Year”. This evidence makes it clear that Dyer, who began as a foreign educational advisor at the Imperial College of Engineering, expanded his interests to a great extent.

Third, as noted above, 42 of his works are books or booklets and 70 are analytical articles or essays, but 15 of the latter were quickly incorporated into and published widely in book or booklet form. What is more, when they were republished as such, they were not altered to revise the content or change the subject matter. The publication of papers in such widely read but specialized journals as *The Scots Magazine* and the *Proceedings of the Glasgow Philosophical Society*

[44, 45, 46, 49, 52, 64, 66, 67, 69, 73, 75, 77, 81, 84, 97] suggests an intent for them to be read by more people, and across broader sections of society. In addition to the above, it should be noted that he had analytical articles and essays published in a variety of periodicals, including *The Engineer*, *The Times*, and *The Young Men's Christian Magazine*, among others.

Four of Dyer's works have been translated into Japanese. They are: *On the Education of Engineers*, his *Valedictory Address to the Students of the Imperial College of Engineering*, *The Evolution of Industry*, and *Dai Nippon* [3, 5, 30, 34].<sup>13</sup>

## II. Engineering education and research

In the previous section we split the subjects addressed in Dyer's works into five categories, yet each of these categories can be further divided into subtopics. A review of previous studies<sup>14</sup> affirms the following important points with regard to overall content related trends in Dyer's works.

First, we have a booklet Dyer prepared when he applied to be a foreign educational advisor with the Meiji Government. Entitled *Selections from Testimonials Presented by Henry Dyer, C.E., on the Occasion of His Appointment as Principal of the Imperial College of Engineering, Tokio, Japan* [1], this booklet was self-published in printed form in February 1873. This is, in fact, Dyer's first published work. It includes a Certificate of Attendance in the Class of Civil Engineering and Mechanics, University of Glasgow for Session 1869–1870 and Session 1870–1871, a list of degrees and special prizes, a Certificate of Proficiency in Engineering Science from the University of Glasgow, testimonials from William John Macquorn Rankine and three other University of Glasgow professors, his acceptance notice for a Whitworth Scholarship, a three year plan of study, letters of recommendation from his mentor at James Aitken & Co. as well as from leaders of this firm (to which he had apprenticed), and testimonials from teachers at Wilson's School at Shotts Iron Works.

Second, when he was a foreign educational advisor, he published three works of particular interest. The first was the *General Report by the Principal for the Period of 1873–1877, Imperial College of Engineering, Tokei* [2]. This was a report detailing the activities of the previous four years dated October 1, 1877, when he was Vice Principal, which he submitted to Ito Hirobumi, the Minister of Public Works. The report gives a detailed status update of the college, including the structure of its courses, its educational methods, and the school's layout of equipment and facilities. It also provides detailed descriptions of engineering education in Britain, America, Germany, France, and Switzerland, and includes impassioned arguments

about how the Imperial College of Engineering, then led by Dyer, was distinctive from the institutions in those other countries. This is noteworthy in that it adds credence to the notion that Dyer did careful research into engineering programs throughout the world and designed the administration and education systems of the Imperial College of Engineering by learning from and improving upon those models. The second was published during his involvement in education and administration at the Imperial College of Engineering. Specifically, Dyer explored ideas about engineering education and the training of engineers, the fruits of which he published. In this work he expounded ideas about the sense of mission as engineers that students of the Imperial College of Engineering should possess, and proposed concepts on the training of engineers [5]. To his British audience, he elaborated on the necessity of systematizing the education of engineers [3, 4, 43]. It is also likely that Dyer played a major role in developing the curricula and regulations at the college. Notably, it is thought that he was involved in editing the school's English calendar (for example the *Imperial College of Engineering, Tokei, Calendar, Session MDCCCLXXIII–LXXIV*), and incorporated therein his conceptions of engineering education and engineer training.<sup>15</sup>

The third is a document [6] prepared for his application for a chair at the University of Glasgow, hoping to gain a teaching position there. Dyer prepared a booklet as part of his application to become Professor of Naval Architecture and Marine Engineering, a department which was established at the university in 1882. He entitled this booklet *Imperial College of Engineering, Tokei, Japan*. He included in it 15 articles showcasing his successes in engineering education at the Imperial College of Engineering. Also in the booklet are a letter of congratulations from the Queen of Great Britain regarding the Japanese Imperial Government's conference upon Henry Dyer of the Third Class of the Order of the Rising Sun, a letter of thanks from Akimasa Yoshikawa, Acting Minister of Public Works, Department of Public Works, Imperial Government of Japan, an article in *The Japan Weekly Mail* (a description of the leaving ceremony of other foreign educational advisors at the Imperial College of Engineering, a letter of thanks and gifts by alumni and current students of the college, and commemorations from the graduation ceremony of the first class of graduating students), articles related to the Imperial College of Engineering (the arrangement of buildings and land, graduation ceremonies, Dyer's leaving party, memorial lectures, the realities and characteristics of educational methods, etc.) in British magazines and newspapers (*Ross-Shire Journal*, *Nature*, etc.),<sup>16</sup> and an excerpt from Isabella Bird's *Unbeaten Tracks in Japan* mentioning the Imperial College of Engineering and Henry Dyer. He submits positive evaluations from both British and Japanese sources with ties to

the Imperial College of Engineering that he led, but there are no examples of results in fields related to shipbuilding. It may have been for this reason that Dyer was not chosen from among the five candidates for the chair of Naval Architecture and Marine Engineering.

The third point is that after Dyer finished his tenure as a foreign educational advisor in Japan and returned home, he initially put all of his efforts into academic studies in the field of engineering. This may have been the result of Dyer's realization that his lack of published work in engineering possibly lessened his chances of being hired at the University of Glasgow. In any case, upon his return he went on to produce many academic articles and booklets in the field of engineering. Notable among them are "The Development of the Marine Engine" and "The Steam Engine since the Days of Watt" [8, 10, 11, 14, 15, 16, 17, 45, 46, 48, 49, 64, 65, 66, 67].

Francis Elgar became the first Professor of Naval Architecture at the University of Glasgow, but he left his position in 1886 after three years, giving Dyer another chance to apply for the post. When Dyer did, he again submitted a booklet [9] cataloguing his works. His application included an essay dated August 16, 1886, detailing his reasons for applying for the post, a list of his published academic works, as well as fifteen letters of recommendation, including letters from such figures such as H. M. Matheson, a London agent of the Japanese Government, various parties involved in shipbuilding, J. A. Ewing, Professor of Engineering, University College, Dundee (a former foreign educational advisor on engineering at the Imperial College of Engineering), A. Allan Shand, the former Foreign Secretary, Finance Department, Japan, and a 32 page article in *The Glasgow Herald* showcasing the Imperial College of Engineering and his accomplishments there. In this list of Dyer's academic achievements we see academic papers [45, 46, 48, 49] and articles [3, 4, 44] on the methodology of engineering education, which were not submitted during his first attempt at gaining employment at the university. The documents submitted for these two applications have been termed "the best sources for materials on Dyer's life."<sup>17</sup>

### III. Publications on educational and social reforms

In applying for a chair in the University of Glasgow, Dyer was not only able to point to his practical experience in education and administration at the Imperial College of Engineering, he was also able to secure glowing letters of recommendation from third parties. During his second application, he submitted research papers in engineering in the hope of making up for his lack of research achievements in his initial application. Nevertheless, Dyer was not selected. This failure to be chosen for a teaching position marked a significant change in the nature

of his writings, which from this point increasingly focused on educational reforms, social reforms, and Japan related topics.

Dyer's writings on educational reforms fall into one of four categories. The first is reforms to methods of training engineers, the second is reforms to the education of engineers in Glasgow in particular, the third focuses on reforms to the University of Glasgow, and the fourth deals with primary and secondary education.

On the issue of changing the way engineers are trained, in 1879 Dyer submitted a pamphlet *The Education of Engineers* [3], to the London based Institution of Civil Engineers, which he had authored while he was still an educational advisor in Japan, and within which he outlined his ideas for educational reform. Those suggestions consisted of ideas aimed at reforms to the education and training of engineers in Britain. Dyer proposed specific recommendations for curricula, course subjects, engineering laboratories, work facilities, experiments, certificates of completion, and other matters. As an example of a system of education with those features, he presented an overview of educational practices he had put in place as the head of the Imperial College of Engineering. Some of the more notable features of his recommendations were that he advocated a combination of hands-on experience, which had been a feature of British educational system, with a grounding in theory. In addition, in the hope of raising the status of engineers as specialists and professionals, he proposed a system of qualifying examinations and the conference of membership qualifications upon those who passed those examinations.

At the same time, he held that engineering must be a "learned profession,"<sup>18</sup> arguing that engineers must be educated in a manner that confers solid scholastic foundations, practical competence, and a well rounded general education. He likewise called for a six year curriculum and educational methods that combined general (i.e. liberal arts) education, specialized education, and practical training, a system which Dyer himself formulated and put into practice at the Imperial College of Engineering [3, 4, 35, 96].

As for reforms in engineering education in Glasgow, Dyer envisaged and presented concrete suggestions for a restructuring of the educational institutions in Glasgow and West Scotland to meet the demands of the age. In presenting these recommendations he drew upon his accomplishments at the Imperial College of Engineering in Japan as well as his observations of contemporary educational practices in mainland Europe, which he visited after returning home from Japan. When the five technical schools in Glasgow were consolidated in 1887 into the Glasgow and West of Scotland Technical College, Dyer went even further in



that he discussed the fundamental nature of the Technical College, expressed his views on the departmental structure of the organization, and offered concrete suggestions [44, 51, 52, 63, 84]. Notably, Dyer discussed general problems regarding reforms to engineering education in Scotland while presenting examples from such institutions as the Imperial College of Engineering in Japan, the Massachusetts Institute of Technology in the United States and the École Centrale in Paris.<sup>19</sup>

When the Glasgow and West of Scotland Technical College was being formed, Dyer participated in the formation as a representative of Anderson College. In this capacity, Dyer stated that he implemented various reforms based on his time at the Imperial College of Engineering. These included the development of curricula, the establishment of well equipped engineering laboratories, pedagogical methods that utilized experiments and graphs, and the implementation of sandwich courses combining theory with practical experience [34, 35]. When Japan invited British educational advisors to come to Japan, its intent was to establish a systematic scheme of specialized engineering education, and then, through the actions of a British educational advisor who returned to Great Britain, Japan had an influence on British education. This is particularly worthy of note.

With regard to reforms at the University of Glasgow, Dyer is said to have looked at the problem of changing the ways of an ancient university from the standpoint of engineering education.<sup>20</sup> In particular, he recommended the establishment of a program in architecture, providing a means for degree matriculation at the University of Glasgow through ties with the Glasgow and West of Scotland Technical College. He paid more attention to new academic fields while at the same time enhancing and developing studies in more conventional fields. He also used results from the natural sciences and tried to use these results to find solutions to social and political issues [18, 19, 21, 67, 69, 70].

If one looks at a catalogue of Dyer's works, it becomes apparent that articles including the word "university" in their titles began to appear in 1886 [47], the year he was passed over as a potential member of the naval architecture department of the University of Glasgow. By 1890, articles by Dyer with "university" in their names totaled 18. Among these are two articles entitled "University Extension and Technical Education" [61] and "The Future of University Extension in Scotland" [76]. University extension was a concept being played out at the time for the purposes of making universities more open to society at large, and Dyer's aim was to effect changes to this end from the standpoint of engineering education at a particular university.



Dyer began to develop a deep interest in reforms of primary and secondary education when he was elected to the Glasgow School Board in 1891. As he laid out his vision for educational reforms in Glasgow, Dyer addressed supplementary and science education in primary and secondary education, and further went on to discuss the broader concept of the education of young people [28, 36, 39, 41, 42, 86, 104].

Research into social reforms, which makes up the second category of Dyer's writings, can be classified into two types: reforms to the Christian church, and the promotion of cooperatives.

Dyer envisaged the development of society through the education of engineers and the advancement of industry via the skills of engineers. The flip side of that, however, was that as advances in industry were made, there was an increase in the seriousness of societal problems that needed to be solved. In this context, Dyer first turned his attention to the churches as a means of spreading the fruits and benefits of civilization among the working class. Though he was a supporter of the Free Church, he began to criticize the whole process of preaching and preachers themselves, insisting that churches could work towards the solution of social ills [22, 24, 73, 79, 80].<sup>21</sup> In *The Foundations of Social Politics* [20] and in *Christianity and Social Problems (An Address Delivered in Bridgeton Free Church, January 5, 1890)* [22], Dyer argued that "The foundations of social politics must rest on Christianity," and in effect leveled criticism at contemporary Christianity for being disengaged from society and from the times. Moreover, he identified problems to be addressed and discussed solutions to such problems.<sup>22</sup>

As for co-operatives, Dyer expressed the hope that the spirit upon which they were founded could serve as an impetus to advance the welfare of citizens and of society as a whole, and to effect social reform. He published papers titled "The Influence of Modern Industry on Social and Economic Conditions" and "The Possibilities of Machinery and Industry and Some of Their Probable Results on Social and Economic Conditions" in such publications as *The Co-operative Wholesale Societies Limited, Annual for 1892*, [81, 83, 85], and also published a booklet [23, 27, 31, 32, 33] through the same cooperative organization. Amidst the numerous problems caused by the development of industry, Dyer found promise in (or "co-operation"), "the ideal of which is the substitution of brotherly trust and association for the cruel force of competition, which results in waste of energy and lives."<sup>23</sup> In a submission entitled "Education in Relation to the Co-operative Movement" (*The Progressive Review*) [90], Dyer asserts that "association or co-operation in some form is the condition of individual and national welfare," and that the cooperative movement "contains at least the germ of a higher and better form of industrial

and social organization.”<sup>24</sup> In *The Evolution of Industry* [30], which he published in 1895, Dyer explored concrete methods by which the forces of competition in industrial society could be controlled and the welfare of the population and co-operative production could be pursued. The growth of trade unionism, the growth in educational opportunities for women and their increased participation in the workforce, the expansion of the cooperative movement, the formation of self-governing bodies, and the participation of the state and cities therein were, according to Dyer, the forces that would propel the evolution of industrial society.<sup>25</sup>

#### IV. Japan related publications

Dyer's studies of Japan are closely tied to his experiences as an educational advisor in the country. The experience of being invited to Japan in the early years of the Meiji Era and contributing to the modernization of the country influenced Dyer's writings and gave them a distinctive character. Interest in Japan throughout the world was on the rise towards the end of the nineteenth century.<sup>26</sup> Moreover, Dyer advanced Japanology at a time when Japan/United Kingdom relations were strengthening. This confluence of developments put him to a position of authority on matters related to Japan and enabled him to contribute to the presentation of the country to the wider world.

Henry Dyer's time as a foreign educational advisor in Japan allowed him to observe the country and become an authority on it, but it must be noted that he maintained close ties with Japan and maintained a deep interest in Japanese affairs even after returning to his native country. When he eventually began to conduct research and publish in the field of Japanology, his direct observations and personal experiences in Japan proved to be of great value. In addition to *Dai Nippon* [34] and *Japan in World Politics* [40], which is the work he is most often associated with, Dyer authored numerous other works related to Japan, such as “Education and National Efficiency in Japan” [94] and “Some Lessons from Japan” [102]. In fact, if the above are included, Dyer wrote at least 17 works whose titles referenced Japan (i.e. “Japan”, “Japanese”, “Nippon”, etc.) [1, 6, 34, 37, 40, 43, 78, 94, 95, 97, 98, 99, 100, 102, 103, 107, 112].

Two things about Dyer's studies of Japan are worthy of particular note. The first is that he discussed Japan by way of comparison with his native Britain. The second is that he hoped Japan would soon become the “Britain of the East”, and later became confident that it eventually would. Here is one instance of Dyer describing the future of Japan: “I venture to hope that I have at least suggested points which are worthy of the attention of all who are interested in the future of Japan. My own ideas with regard to that future are decidedly

optimistic, and I believe that in material, intellectual, and moral influence, Japan will fully justify her claim to be called the Britain of the East.”<sup>27</sup>

The other remarkable feature of Dyer’s studies of Japan is his consistent attention to the substantial role that education played in the modernization of Japan. He says of the country’s rapid growth, for example, “At the root of all these developments has been the very complete system of education which has been established in the country.” He further remarked, “The recent history of Japan is the most striking illustration of the influence of the wisely directed system of education on national affairs when those who are responsible for it are infused with high national ideals.” He goes on to compare Japan with Great Britain, where industrialization was an organic process, and, focusing on the centrally directed education system of the former, boldly states that Japan’s educational system “affords lessons to Britain.”<sup>28</sup> These “Lessons for Great Britain” mentioned in *Dai Nippon* are also given a special section in *Education and National Life* in a section called “Lessons from Japan”,<sup>29</sup> and as stated above, Dyer published separate papers entitled “Education and National Efficiency in Japan” [94] and “Some Lessons from Japan” [102]. “Some Lessons from Japan” goes so far as to state in its initial paragraph that “It is universally admitted that the rise of Japan as a member of the comity of nations is the political wonder of the latter half of the nineteenth century, and it is not only the duty, but also the interest, of all the countries in the world to study the causes which have brought it about, and as far as possible to apply the lessons to be learned so that they may profit thereby.”<sup>30</sup>

Dyer argues that among the different fields of education, it is engineering from which Britain could learn most from Japan, yet he does not limit his assertions to engineering. Specifically, Dyer held that Japan’s systems of commercial education and the teaching of “moral science” should be adopted by Britain as well. Arguments to this effect are found in *Japan in World Politics* [40], *Education and National Life* [41], and *Commercial Education in Japan* [107].<sup>31</sup>

There is another category of notable works by Dyer in the area of Japanology. Dyer submitted a total of four analytical papers to the *Financial Review of Reviews* in 1906 alone. Around this time, to raise contingency funds required for the Russo-Japanese war and to invite various forms of foreign investment in industry, Japan had to take on a great deal of debt by issuing bonds in pounds sterling.<sup>32</sup> It was during this time that Dyer used the finances of Japan as a vehicle for discussing the country’s development as well as the “characteristics” of the Japanese people.

In the first of these four articles, which is entitled “Japanese Industries and Foreign

Investments” [97], Dyer points to the quality of certain Japanese institutions, such as its educational system and its constitutional form of government, as examples to guarantee the safety of investments in the country. In the second article, titled “The Commercial Morality of Japan” [98], Dyer informs readers of the improvement in the status of Japanese merchants and the higher standards of commercial ethics. In the third, “Legal Aspects of Foreign Investments in Japan” [99], Dyer argues that investments in Japan are quite safe because they are backed by the authority of the government. In his fourth article, “The Japanese Loan Conversion: Interview with Mr. K. Takahashi, the Government Commissioner” [100], Dyer makes the case for both the legitimacy and the safety of Japan’s sale of public bonds in pounds sterling.<sup>33</sup>

Henry Dyer wrote about, and often championed Japanese issues, among which were the country’s finances, its heightened standards of commercial integrity, the strong desire on the part of the Japanese people for their country to be treated as the equal to others, and Japan’s position during the Russo/Japanese war. In these written works and through other forms of advocacy, Dyer contributed to help forward Japan/United Kingdom relations. This is likely in part due to the fact that in 1902, Dyer was named Imperial Financial and Industrial Liaison by the Meiji Government, the chief objective of which was to describe Japan and Japanese issues to the broader world, and in this capacity he used his intimate knowledge of Japan in his analyses.

## V. Dyer as a prolific and versatile author

The main themes and characteristics of Henry Dyer’s works can be summarized as follows. To date, 42 books and booklets printed and/or published have been attributed to Dyer. This is in addition to 70 known articles and essays. His publications are not just numerous; they are also broad in scope. They chiefly consist of works on engineering education, engineering research, educational reforms, social reforms, and Japanology.

Initially, when Dyer was employed by the Meiji Government as an educational advisor, he chiefly dealt with the topic of engineering education and the training of engineers. Upon returning to Scotland, he at first published studies in engineering, but did not persist in this for long. It is likely that these papers in engineering were the result of Dyer’s desire to be granted a professorship at the University of Glasgow. Once he failed to be chosen for the position, his writings took a different form. He began to undertake studies on the topic of educational reforms, and went on to broaden his scope of inquiry to include in-depth studies

on social reforms. On the topic of educational reform, Dyer published research in four areas: the training of engineers, engineering education in Glasgow, education at the University of Glasgow, and primary and secondary education in the city of Glasgow. His studies on the topic of social reform focused on the role of churches and the development of the cooperative movement.

As interest in Japan's role in world affairs grew at the end of the nineteenth century and progress was seen in Japan/United Kingdom relations, Dyer began actively to pursue Japanology, leaving a body of distinctive studies in the field. Dyer published just 15 works on Japanology, which is by no means a large number, but they include the substantial *Dai Nippon* and *Japan in World Politics*. With his keen understanding of Japan rooted in his own experiences as an educational advisor in the country, Dyer contributed to the advancement in the field of Japanology and to a deeper understanding of Japan among general readers. In recent years Dyer's contributions have received renewed attention. In fact, they have been collected, edited, and published in five volumes entitled *The Collected Writings of Henry Dyer*, which is part of *The Collected Works of Japanologists* series.<sup>34</sup>

Dyer's published works are broad in scope, yet they share distinctive and common features by way of analytical methods and perspectives. For example, Dyer makes liberal use of comparisons of Japan and European countries to explore the subject matter he addresses. Particularly worthy of note is Dyer's treatment of Japan as a "model" country, in analyses in which, for example, he tries to take lessons he has learned in Japan and apply them to a stagnating Britain.

This comparative aspect is a feature seen throughout Dyer's writings, even in some of his earliest works. When he was put in charge of education and administration at the Imperial College of Engineering, he attempted to adopt a system that combined systems for training industrial human resources common in mainland European countries with the British style of hands on, practical education. When he left Japan and tried to suggest reforms to systems of engineering education in his native Britain, he kept his sights on the things he had put into practice at the Imperial College of Engineering as well as broader contemporary practices in other parts of the world, including Japan.

Henry Dyer was invited to go to Japan to serve as a facilitator of the industrialization of modern Japan at a relatively young age, but as Japan continued to grow at a pace that amazed the world around it, in his later years he became active in the field of Japanology. Through analyses of the driving forces that enabled Japan's entry into the world community,

Dyer found lessons he thought useful to a stagnating British industrial society. His ability to do so was undoubtedly the product of his experiences in, and observation of, Japan as a foreign educational advisor. Moreover, once he was granted the position of Imperial Financial and Industrial Liaison by the government of Japan and tasked with promoting Japan/United Kingdom relations, he gained access to a wealth of data on Japan. This is likely because he consistently and tirelessly observed trends in Japan and Great Britain and furthered his insight into the two powers<sup>35</sup>.

## Notes:

- 1) Matthew, H. C. G. & Harrison, B. eds., *Oxford Dictionary of National Biography*. Vol. 17, Oxford U. P., Oxford & Tokyo, 2004, p. 483.
- 2) Dyer, H., *Dai Nippon, the Britain of the East, a Study in National Evolution*. Blackie & Son, London, 1904 & 1905; Do., *Japan in World Politics, a Study in International Dynamics*. Blackie & Son, London, 1909.
- 3) Matthew, H. C. G. & Harrison, B. eds., *op. cit.*, p. 482.
- 4) Thirty nine works are listed in Kita, M., *Kokusai Nihon wo Hiraita Hitobito — Nihon to Scotland no Kizuna* ("The people who pioneered international Japan: The bonds between Japan and Scotland". Dobunkan Shuppan Co., 1984, pp. 146 – 147), 89 works are listed in Miyoshi, N., "Henry Dyer no Nihon Kenkyū" ("Japan studies by Henry Dyer"), in *Bulletin of the Faculty of Education, Hiroshima University*, Part 1, No. 36 (1987, pp. 12 – 16), and 89 works are cataloged in both Miyoshi, N., *Dyer no Nihon* ("Dyer's Japan". Fukumura Shuppan Inc., 1989, pp. 1 – 7 at the end) and Miyoshi, N., (Sarada, T. & A., trans.), *Henry Dyer* (Global Oriental, Kent, 2004, pp. 179 – 183); *The University of Strathclyde, University Archives and Record Centre Catalogue IV*. M-51, shows 18 works and 24 specimens. A library card search of the University of Glasgow Library shows 41 works. Miyoshi, N., ed., *The Collected Writings of Henry Dyer* (Kent, 2006) contains reprints of 28 books/booklets and articles/essays.
- 5) Shown in "List of articles, books etc. by Dyer. Compiled by Shoji Katoh", University of Strathclyde Archives, *Catalogue IV*, s.v. "Records of staff and students, societies, etc., 51. Dyer, Henry (1848 – 1918)". I also presented a catalogue of Henry Dyer's works during a presentation titled "Observations on H. Dyer's *Dai Nippon: Britain of the East* (1904)" at the 58<sup>th</sup> conference of the Kansai Kyoiku Gakkai (Nov. 5, 2006).
- 6) i) The paper for which Dyer was awarded the Watt Prize while a student at the University of Glasgow is entitled *The Influence of Newtonian Principles*. 1872, 74 pages, MS. ii) Notebooks from a lecture course in natural philosophy at the University of Glasgow. Established in the 1871 academic year, the course was taught by Prof. William Thomson (1824 – 1907). The title on the covers is *Higher Mathematical Natural Philosophy Class, Glasgow University Session 1871-72, Henry Dyer; 449 St. Vincent Street, Glasgow, and Waves and Vibrations extra work for Higher Natural Philosophy Class, Glasgow University Session 1871-72, Henry Dyer; 449 St. Vincent Street, Glasgow*. iii) Dyer's Correspondence with Dr. Andrew Kirkwood (16 Aug. 1886), (17 Aug. 1886). MS. Dyer's Correspondence with Patrick Geddes (29 March 1892) (1 Dec. 1898) (20 Sept. 1902), MS, etc.
- 7) i) [Dyer's Discussion on William Denny's Paper] 'On Mr. Mansel's and the Late Mr. Froude's Methods of Analysing the Results of Progressive Speed Trials', *Transactions of the Institution of Engineers and Shipbuilders in Scotland*, Vol. 28 (1885) pp. 1 – 8. ii) [Dyer's Correspondence on John Milne's Paper] 'On Construction in Earthquake Countries', *Minutes of Proceedings of the Institution of Civil Engineers*, Vol. 83, Part 1 (1886) pp. 309 – 313. iii) [Dyer's Discussion on Thomas Davison's Paper] 'On a Peculiar Form of Corrosion in Steel and Iron Propeller Shafts of Steam Ships', *Transactions*



- of the *Institution of Engineers and Shipbuilders in Scotland*, Vol. 28 (1886) pp. 189 – 190, 193. iv) [Dyer's Communication on W. J. Millar's Paper] 'On Some Properties of Cast Iron and Other Metals', *Transactions of the Institution of Engineers and Shipbuilders in Scotland*, Vol. 29 (1886) pp. 133 – 137, and others.
- 8) 'Education and National Life, Address by Dr Dyer', *The Glasgow Herald* (27 Jan. 1911) p. 10, etc.
  - 9) Dyer, H. ed., "John Elder" *Chair of Naval Architecture and Marine Engineering, Glasgow University, 1886*. Henry Dyer, 1886. p. 11.
  - 10) 'Papers and Articles by Henry Dyer which have been printed and published also Public Lectures'.
  - 11) Miyoshi, N., *Dyer no Nihon*, op. cit., pp. 186 – 187.
  - 12) *The Collected Writings of Henry Dyer* (op. cit.) is divided into the following six parts: i) calendars and reports from his time at the Imperial College of Engineering, ii) papers on engineering, iii) papers on educational reforms, iv) studies on social reforms, v) works related to Japan and reports on Japan, and vi) papers on education (national, civic, and engineering).
  - 13) Umetani, N. and Yamanaka, Y., trans., 'On the Education of Engineers', in *Seisan to Gijutsu*, Vol. 28, No. 4 (April 1976) pp. 5 – 8 and No. 5 (May 1976) pp. 2 – 4. Sengoku, M., trans., 'Valedictory Address to the Students of the Imperial College of Engineering', in *Kōgaku Sōshi*, Vol. 25 (Nov. 1883) pp. 535 – 547. Tsuboya, Z., trans., *The Evolution of Industry*, Hakubunkan, 1896. Hirano, I., trans., *Dai Nippon*, Jitsugyo no Nihon Sha, 1999.
  - 14) Kita, M., *Kokusai Nihon wo Hiraita Hitobito*, op. cit., Chapters 4 and 5; Miyoshi, N., *Dyer no Nihon*, op. cit. Of these, I made much use of Miyoshi in characterizing the types of works by Dyer, their content, tendencies, etc.
  - 15) Miyoshi, N., *Dyer no Nihon*, *ibid.*, pp. 85 – 88.
  - 16) This author, "Eikoku kara Mita Kōbu Daigakkō" ("The Imperial College of Engineering as seen from Great Britain"), in Etoh, K., ed., *Hikaku Kyōiku-shi no Sōgō-teki Kenkyū* ("Comprehensive Studies in the History of Comparative Education"), No. 1, Etoh Lab at the School of Education, Nagoya University, May 1980, pp. 37 – 49.
  - 17) Checkland, O., 'Scotland and Japan 1860 – 1914: A Study of Technology Transfer and Cultural Exchange', in Nish, I. ed., *Bakumatsu and Meiji: Studies in Japan's Economic and Social History*. International Centre for Economics and Related Disciplines, London School of Economics, 1981/2, p. 75.
  - 18) Dyer, H., *The Education of Engineers*. Imperial College of Engineering, Tokei, 1879, p. 8, p. 32; Do., *The Education of Civil and Mechanical Engineers*. E. & F. N. Spon, London, 1880, p. 7, p. 9, p. 33; Miyoshi, N., *Dyer no Nihon*, op. cit., p. 91.
  - 19) Miyoshi, N., *ibid.*, p. 144.
  - 20) *Ibid.*, p. 182.
  - 21) *Ibid.*, p. 188.
  - 22) *Ibid.*, pp. 190 – 191.
  - 23) Dyer, H., 'The Influence of Modern Industry on Social and Economic Conditions'. *The Co-operative Wholesale Societies Limited, Annual for 1892*. 1892, p.175; Do., *The Influence of Modern Industry on Social and Economic Conditions*. Co-operative Printing Society Ltd., Manchester, 1892, p.33; Miyoshi, N., *Dyer no Nihon*, *ibid.*, p.192.
  - 24) Dyer, H., 'Education in Relation to the Co-operative Movement', *The Progressive Review*, Vol. 1, No. 4 (Jan. 1897) p. 300.
  - 25) Kita, M., *Kokusai Nihon wo Hiraita Hitobito*, op. cit., pp. 150 – 156; Miyoshi, N., *Dyer no Nihon*, op. cit., pp. 192 – 194.
  - 26) For example, as interest in Japan rose in the wake of the Russo-Japanese war and more books on Japanology were being published in English, the August 28, 1905 edition of *Literary Digest* featured a column entitled "Notable Books of the Day, Useful Books on Japan". It showcases and reviews 13 books of the genre, among which is Dyer's *Dai Nippon*.
  - 27) Dyer, H., *Dai Nippon*, op. cit., p. ix (p. 28 in the Japanese translation by Hirano, I., op. cit.).



- 28) Dyer, H., 'Education and National Efficiency in Japan', *Nature*, Vol. 71, No. 1833 (15 Dec. 1904) p. 151; Do., *Dai Nippon*, *ibid.*, pp. 342–343 (p.413 in the Japanese translation by Hirano, I., *ibid.*); Miyoshi, N., *op. cit.*, pp. 206–212.
- 29) 'Lessons for Great Britain', Dyer, H., *Dai Nippon*, *ibid.*, p. 425 (p. 507 in the Japanese translation by Hirano, I., *ibid.*); 'Lesson from Japan', Dyer, H., *Education and National Life*. Blackie and Son, London, 1912, p. 36.
- 30) Dyer, H., 'Some Lessons from Japan', *The Co-operative Wholesale Societies Limited, Annual for 1908*. 1908, p. 146.
- 31) Dyer, H., *Japan in World Politics, a Study in International Dynamics*. *op. cit.*, pp. 109–110, p. 117; Do., *Education and National Life*, *op. cit.*, p. 39, p. 86; Do., 'Commercial Education in Japan', *The Glasgow Herald* (26 Nov. 1909) p. 4; Miyoshi, N., *Dyer no Nihon*, *op. cit.*, pp. 211–212.
- 32) Miyoshi, N., *Dyer no Nihon*, *ibid.*, p. 203.
- 33) *Ibid.*, pp. 203–205.
- 34) See the sixth in the list in fn. 4 and fn. 12.
- 35) This paper is a revised and extended version of a work titled "Oyatoi Kyōshi Henry Dyer no Chosaku" ("The Works of Foreign Educational Advisor Henry Dyer"), in *Kyōiku-shi Kenkyū-shitsu Nenpō*; ("Annual Report of the Educational History Lab") No. 12 (Dec. 2006) pp. 1–32.

## Appendix I . List of Henry Dyer's Works

### I . BOOKS AND PAMPHLETS

- 1 Dyer, H. ed., *Selections from Testimonials Presented by Henry Dyer, C.E., on the Occasion of His Appointment as Principal of the Imperial College of Engineering, Tokio, Japan.* February 1873. pp. 16.
- 2 Imperial College of Engineering (KOBU-DAI-GAKKO), Tokei, *General Report by the Principal for the Period 1873-77.* Tokei, Printed at the College, 1877. pp. 62.
- 3 *The Education of Engineers.* Imperial College of Engineering, Tokei, 1879. pp. 61.
- 4 *The Education of Civil and Mechanical Engineers.* E. & F. N. Spon, London, 1880. pp. 44.
- 5 *Valedictory Address to the Students of the Imperial College of Engineering.* Imperial College of Engineering, Tokei, May 1882. pp. 6.
- 6 Dyer, H. ed., *Imperial College of Engineering, Tokei, Japan.* [1882], Printed for Private Circulation, pp. 37.
- 7 *Technical Education, with Special Reference to the Requirements of Glasgow and the West of Scotland.* Glasgow, 1883. pp. 30.  
\*Printed also in *Proceedings of the Royal Philosophical Society of Glasgow*, Vol. 15 (1883-84) pp. 18-47.
- 8 *On Energy and Entropy with Their Application to the Theories of Air and Steam.* Printed by William Munro, Glasgow, 1885. pp. 29.  
\*Reprinted from *The Transactions of the Institution of Engineers and Shipbuilders in Scotland*, Vol. 28 (1885) pp. 35-63.
- 9 Dyer, H. ed., "*John Elder*" *Chair of Naval Architecture and Marine Engineering, Glasgow University.* Henry Dyer, 1886. pp. 32.
- 10 *On the Present State of the Theory of the Steam Engine and Some of its Bearings on Current Marine Engineering Practice.* Printed by William Munro, Glasgow, 1886. pp. 58.  
\*Reprinted from *The Transactions of the Institution of Engineers and Shipbuilders in Scotland*, Vol. 29 (1886) pp. 47-72.
- 11 *The Development of the Marine Engine.* Robert Anderson, Glasgow, 1886. pp. 27.  
\*Printed also in *Proceedings of the Philosophical Society of Glasgow*, Vol. 18 (1886) pp. 1-27.
- 12 *On the Education of Engineers.* Printed by William Munro, Glasgow, 1887. pp. 45.  
\*Reprinted from *The Transactions of the Institution of Engineers and Shipbuilders in Scotland*, Vol. 30 (1887) pp. 9-45.
- 13 *The Technical Schools (Scotland) Act, 1887, and Some of its Relations to Elementary and Higher Education.*

- Printed by Robert Anderson, Glasgow, [1887]. pp. 25.
- 14 *The Efficiency of Steamships from the Owners' Point of View*. M'Corquodale & Co. Limited, Glasgow, Printers, 96 Maxwell Street, 1888. pp. 31.
- 15 *On the Horse Power of Marine Engines*. Printed by William Munro, Glasgow, 1889. pp. 36.  
\*Reprinted from *The Transactions of the Institution of Engineers and Shipbuilders in Scotland*, Vol. 32 (1888-89) pp. 1-36.
- 16 *The Steam Engine since the Days of Watt: A Paper Read before the Society on 18th January, 1889, in Honour of the Anniversary of the Birth of James Watt (19th January)*. William Hutchison, Greenock, 1889. pp. 36.
- 17 *Notes on Some Recent Steam Engine Trials*. Printed by William Munro, Glasgow, 1889. pp. 21.  
\*Reprinted from *Transactions of the Institution of Engineers and Shipbuilders in Scotland*, Vol. 32 (1889) pp. 177-200.
- 18 *The Training of Architects*. Glasgow, 1889. pp.21.  
\*Printed also in *Proceedings of the Royal Philosophical Society of Glasgow*, Vol. 20 (1888-89) pp. 66-86.
- 19 *A Modern University, with Special Reference to the Requirements of Science, A Paper Read before the Glasgow University Club, 11th April, 1889*. Printed for the Club by S. Cowan & Co., General Printers, Perth, 1889. pp. 25.  
\*Reprinted from *The Scots Magazine*, New Series, Vol. 4 (July 1889) pp. 19-32, (Aug. 1889) pp. 106-116.
- 20 *The Foundations of Social Politics*. David Bryce and Son, Glasgow, 1889. pp. 32.
- 21 *On a University Faculty of Engineering*. Printed by C. F. Hodgson & Son, Gough Square, Fleet Street, London, [1890]. pp. 40.
- 22 *Christianity and Social Problems. An Address Delivered in Bridgeton Free Church, January 5, 1890*. David Bryce and Son, Glasgow, 1890. pp. 23.
- 23 *Co-operators and Education*. Printed by the Scottish Co-operative Wholesale Society Limited, Glasgow, 1890. pp. 10.
- 24 *Missions and Missionaries*. n. p., [1890]. pp. 11.  
\*Reprinted from *The Scots Magazine*, New Series, Vol. 5 (March 1890) pp. 289-299.
- 25 *The Science Curriculum in the Universities*. n. p., 1890. pp. 7.  
\*Reprinted from *The Scots Magazine*, New Series, Vol. 5 (May 1890) pp. 417-422.
- 26 *Memoir of Henry Muirhead, M.D., LL.D.*. Printed by Robert Anderson, 22 Ann Street. Glasgow, [1890]. pp. 10.  
\*Reprinted from *Proceedings of the Philosophical Society of Glasgow*, Vol. 22 (1890-91) pp. 22-30.

- 27 *The Influence of Modern Industry on Social and Economic Conditions*. Co-operative Printing Society Limited, 92 Corporation Street, Manchester, 1892. pp. 48.  
\*Reprinted from *The Co-operative Wholesale Societies Limited, Annual for 1892*, 1892. pp. 145-190.
- 28 *Science Teaching in Schools, An Address*. Blackie & Son Limited, London, Glasgow, Edinburgh and Dublin. 1893. pp. 69+Appendix (pp. 70-128).
- 29 *Technical Education in Glasgow and the West of Scotland: a Retrospect and a Prospect*. 1893. pp. 29.  
\*From *Proceedings of the Philosophical Society of Glasgow*, Vol. 25 (1893-94) pp. 23-51.
- 30 *The Evolution of Industry*. Macmillan and Co., London and New York, 1895. pp.xiii, 285; Reprinted by Arno Press, New York, 1972.
- 31 *Co-operators and Education*. Printed by the Scottish Co-operative Wholesale Society Limited, Glasgow, 1899. pp. 10.
- 32 *Co-operators & Citizenship*. Printed by the Scottish Co-operative Wholesale Society Limited, Glasgow, 1899. pp. 10.
- 33 *Co-operator & Politics*. Printed by the Scottish Co-operative Wholesale Society Limited, Glasgow, 1900. pp. 10.
- 34 *Dai Nippon, the Britain of the East, a Study in National Evolution*. Blackie & Son Limited, 50 Old Bailey, E. C., London, Glasgow and Dublin, 1904. pp.xvi, 450; Adamant Media, S. I., 2002.
- 35 *Introductory Address on the Training and Work of Engineers in Their Wider Aspects*. Technical College, George Street, Glasgow, 1905. pp. 23.
- 36 *The Continuation Classes of the School Board of Glasgow*. McCorquodale & Co., Glasgow, 1906. pp. 31.
- 37 *Japanese Industries and Foreign Investments*. Published in conjunction with the "Financial Review of Reviews", 2 Waterloo Place, London, S. W., 1906. pp. 12.  
\*Reprinted from *The Financial Review of Reviews*, Vol. 1, No. 4 (Feb. 1906) pp. 88-96.
- 38 *Education and Work*. Printed by A. Romanes & Son, "Press" Office, Dunfermline, 1906. pp. 30.
- 39 *Continuation Classes in Glasgow and Neighborhood*. Lecture at the Glasgow Branch of the Educational Institute of Scotland, on Nov. 20, 1908. Printed Privately, Glasgow, 1908. pp. 31.
- 40 *Japan in World Politics, a Study in International Dynamics*. Blackie & Son Limited, 50 Old Bailey, E. C., London, Glasgow, Dublin and Bombay, 1909. pp. xiii, 425; Adamant Media, S. I., 2001.
- 41 *Education and National Life*. Blackie and Son Limited, London, 1912. pp. 112.
- 42 *Education and Industrial Training of Boys and Girls*. Blackie and Son Limited, London, 1913. pp. 118.

## II. ARTICLES

- 43 The Imperial College of Engineering, Tokei, Japan.  
*The Engineer*, Vol. 44 (14 Sept. 1877) p. 186.
- 44 Technical Education, with Special Reference to the Requirements of Glasgow and the West of Scotland.  
*Proceedings of the Royal Philosophical Society of Glasgow*, Vol. 15 (1883-84) pp. 18-47.
- 45 On Energy and Entropy and Their Applications to the Theories of Air and Steam.  
*Transactions of the Institution of Engineers and Shipbuilders in Scotland*, Vol. 28 (1885) pp. 35-63.
- 46 On the Present State of the Theory of the Steam Engine, and Some of its Bearings on Current Marine Engineering Practice.  
*Transactions of the Institution of Engineers and Shipbuilders in Scotland*, Vol. 29 (1886) pp. 47-72.
- 47 Universities and Engineering, I. II. III. IV. V. VI.  
*Industries*, Vol. I (2 July 1886) p. 6.  
*Industries*, Vol. I (23 July 1886) p. 74.  
*Industries*, Vol. I (6 Aug. 1886) pp. 121-122.  
*Industries*, Vol. I (3 Sept. 1886) p. 226.  
*Industries*, Vol. I (1 Oct. 1886) p. 338.  
*Industries*, Vol. I (29 Oct. 1886) pp. 458-459.
- 48 On the Two Chief Laws of Thermodynamics, I, II, III, IV.  
*Industries*, Vol. I (9 July 1886) p. 26.  
*Industries*, Vol. I (20 Aug. 1886) p. 174.  
*Industries*, Vol. I (27 Aug. 1886) pp. 199-200.  
*Industries*, Vol. I (12 Nov. 1886) pp. 506-507.
- 49 The Development of the Marine Engine.  
*Proceedings of the Philosophical Society of Glasgow*, Vol. 18 (1886) pp. 1-27.
- 50 University Organisation.  
*The Glasgow Herald* (7 Dec. 1886) p. 3, c. 2-3.  
University Organisation, No. II.  
*The Glasgow Herald* (5 March 1887) p. 4, c. 3-4.
- 51 The Glasgow and West of Scotland Technical College.  
*The Glasgow Herald* (4 Jan. 1887) p. 2, c. 7-8.
- 52 On the Education of Engineers.  
*Transactions of the Institution of Engineers and Shipbuilders in Scotland*, Vol. 30 (1887) pp. 9-45.

53 University Evening Classes.

*The Glasgow Herald* (11 March 1887) p. 8, c. 7-8.

54 University Classes for Merchants, I.

*The Glasgow Herald* (28 March 1887) p. 8, c. 1.

University Classes for Merchants, II.

*The Glasgow Herald* (11 Apr. 1887) p. 8, c. 7-8.

55 A Notable French Technical School.

*The Glasgow Herald* (9 June 1887) p. 8, c. 4-5.

56 The Technical Schools (Scotland) Bill.

*The Glasgow Herald* (28 Sept. 1887) p. 4, c. 7-8.

The Technical Schools (Scotland) Act, II.

*The Glasgow Herald* (12 Nov. 1887) p. 3, c. 5-6.

The Technical Schools (Scotland) Act, III.

*The Glasgow Herald* (22 Nov. 1887) p. 4, c. 5-6.

57 The Organisation of Industrial Education.

*Industries*, Vol. 3 (14 Oct. 1887) pp. 420-421.

58 Technical Education.

*The Engineer*, Vol. 64 (11 Nov. 1887) pp. 384-385.

59 The Technical Schools (Scotland) Act, 1887, and Some of Its Relations to Elementary and Higher Education.

*Proceedings of the Glasgow Philosophical Society*, Vol. XIX, No. III (30 Nov. 1887) pp. 46-70.

60 Memoir of Mr. David Sandeman.

*Proceedings of the Philosophical Society of Glasgow*, Vol. 19 (1887-88) pp. 383-386.

61 University Extension and Technical Education, I. II. III.

*Industries*, Vol. 4 (27 Jan. 1888) pp. 77-78.

*Industries*, Vol. 4 ( 3 Feb. 1888) pp. 104-105.

*Industries*, Vol. 4 (10 Feb. 1888) pp. 129-130.

62 The Universities Bill.

*The Glasgow Herald* (16 June 1888) p. 10, c. 4.

63 The Glasgow and West of Scotland Technical College.

*Nature*, Vol. 38 (30 Aug. 1888) pp. 428-429.

*The Educational News*, No. 13 (20 Oct. 1888) pp. 736-737.

- 64 On the Horse Power of Marine Engines.  
*Transactions of the Institution of Engineers and Shipbuilders in Scotland*, Vol. 32 (1889) pp. 1-36.
- 65 The First Century of the Marine Engine.  
*The Transactions of the Institution of Naval Architects*, Vol. 30 (1889) pp. 86-112.
- 66 Notes on Some Recent Steam Engine Trials.  
*Transactions of the Institution of Engineers and Shipbuilders in Scotland*, Vol. 32 (1889) pp. 177-200.
- 67 The Training of Architects.  
*Proceedings of the Royal Philosophical Society of Glasgow*, Vol. 20 (1889-90) pp. 66-86.
- 68 Commencing Work; or, How to Prepare for the Professions. X, The Engineer.  
*The Guide*, Vol. 10, No. 111 (March 1889) pp. 51-53.  
*The Guide*, Vol. 10, No. 112 (April 1889) pp. 72-73.  
*The Guide*, Vol. 10, No. 113 (May 1889) pp. 92-93.
- 69 A Modern University.  
*The Scots Magazine*, New Series, Vol. 4 (July 1889) pp. 19-32.  
*The Scots Magazine*, New Series, Vol. 4 (Aug. 1889) pp. 106-116.
- 70 On a University Faculty of Engineering.  
*Transactions of the Institution of Engineers and Shipbuilders in Scotland*, Vol. 33 (1889-90) pp. 15-54.
- 71 The Universities (Scotland) Act, 1889, I & II.  
*The Glasgow Herald* (7 Nov. 1889) p. 4, c. 3-5.  
*The Glasgow Herald* (15 Nov. 1889) p. 9, c. 1-3.
- 72 Training for Trades and Crafts.  
*Industries*, Vol. 8 (14 Feb. 1890) pp. 146-147.  
*Industries*, Vol. 8 (28 Feb. 1890) pp. 193-195.  
*Industries*, Vol. 8 (21 March 1890) pp. 266-267.
- 73 Missions and Missionaries.  
*The Scots Magazine*, New Series, Vol. 5 (March 1890) pp. 289-299.
- 74 Engineers in the Royal Navy.  
*The Glasgow Herald* (16 April 1890) p. 13, c. 5.
- 75 The Science Curriculum in the Universities.  
*The Scots Magazine*, New Series, Vol. 5 (May 1890) pp. 417-422.
- 76 The Future of University Extension in Scotland.  
*The University Extension Journal*, Vol. I (1 Aug. 1890) pp. 80-81.



- 77 Memoir of Henry Muirhead, M.D., LL.D.  
*Proceedings of the Philosophical Society of Glasgow*, Vol. 22 (1890-91) pp. 22-30.
- 78 Constitutional Government in Japan. I, II.  
*The Scots Magazine*, New Series, Vol. 6 (Nov. 1890) pp. 452-457.  
*The Scots Magazine*, New Series, Vol. 7 (Dec.1890) pp. 117-123.
- 79 The Needs of Young Men.  
*The Young Men's Christian Magazine*, New Series, Vol. 12, No. 5 (Feb. 1891) pp. 83-85.
- 80 The Aim of Missions.  
*The Scots Magazine*, New Series, Vol. 7 (March 1891) pp. 294-299.
- 81 The Influence of Modern Industry on Social and Economic Conditions.  
*The Co-operative Wholesale Societies Limited, Annual for 1892* (1892) pp. 145-190.
- 82 The Race Across the Atlantic.  
*The Scottish Review*, Vol. 19 (Jan. 1892) pp. 1-26.
- 83 The Possibilities of Machinery and Industry and Some of Their Probable Results on Social and Economic Conditions.  
*The Co-operative Wholesale Societies Limited, Annual for 1892* (1893) pp. 301-338.
- 84 Technical Education in Glasgow and the West of Scotland: a Retrospect and a Prospect.  
*Proceedings of the Glasgow Philosophical Society*, Vol. 25 (1893-94) pp. 23-51.
- 85 Education in Citizenship.  
*The Co-operative Wholesale Societies Limited, England and Scotland, Annual for 1894* (1894) pp. 286-313.
- 86 Evening Continuation Schools, Part I.  
*The Educational News*, No. 19 (3 Feb. 1894) pp. 76-78.  
Evening Continuation Schools, Part II.  
*The Educational News*, No. 19 (10 Feb. 1894) pp. 92-94.
- 87 The Recent Progress and Present Condition of Engineering Competition.  
*The Engineering Review*, New Series, Vol. III, No. 4 (21 Oct. 1895) pp. 108-109.  
*The Engineering Review*, New Series, Vol. III, No. 5 (20 Nov. 1895) p. 156.
- 88 The Future of Politics.  
*The Westminster Review*, Vol. 145, No. 1 (Jan. 1896) pp. 1-13.
- 89 The Centenary of a Glasgow College.  
*The Glasgow Herald* (21 Oct. 1896) p. 4, c. 6-8.
- 90 Education in Relation to the Co-operative Movement.

- The Progressive Review*, Vol. 1, No. 4 (Jan. 1897) pp. 299-308.
- 91 Some Urgent Educational Problems in Glasgow.  
*The Glasgow Herald* (13 May 1898) p. 10, c. 7-8.
- 92 Mechanical Engineering.  
Mclean, A. ed., *Local Industries of Glasgow and the West of Scotland*. Local Committee for the Meeting of the British Association, Glasgow, 1901, pp. 36-91.
- 93 Glasgow and West of Scotland Technical College.  
*The Scottish Co-operator, a Journal of Progress and Economy*, Vol. 9, No. 143 (11 Jan. 1901) p. 8.
- 94 Education and National Efficiency in Japan.  
*Nature*, Vol. 71, No. 1833 (15 Dec. 1904) pp. 150-151.
- 95 Japan nach Reisen und Studien. By J. J. Rein.  
*Nature*, Vol. 71, No. 1852 (27 Apr. 1905) pp. 603-604.
- 96 The Training and Work of Engineers in Their Wider Aspects: Introductory Address; by Henry Dyer, Glasgow Technical College Scientific Society, October 21st 1905.  
*Transactions of Glasgow Technical Scientific Society*, Vol. 2 (1905-06) pp. 1-23.
- 97 Japanese Industries and Foreign Investments.  
*The Financial Review of Reviews*, Vol. 1, No. 4 (Feb. 1906) pp. 88-96.
- 98 The Commercial Morality of Japan.  
*The Financial Review of Reviews*, Vol. 1, No. 7 (May 1906) pp. 399-408.
- 99 Legal Aspects of Foreign Investments in Japan.  
*The Financial Review of Reviews*, Vol. 2, No. 10 (Aug. 1906) pp. 109-117.
- 100 The Japanese Loan Conversion: Interview with Mr. K. Takahashi, the Government Commissioner.  
*The Financial Review of Reviews*, Vol. 2, No. 13 (Nov. 1906) pp. 329-336.
- 101 Scientific and Technical Studies.  
*The Glasgow Herald* (12 April 1907) p. 9, c. 1-2.
- 102 Some Lessons from Japan.  
*The Co-operative Wholesale Societies Limited, Annual for 1908* (March 1908) pp. 146-166.
- 103 Engineering in Japan.  
*The Times* (18 March 1908) Engineering Supplement, p. 3.
- 104 Compulsory Continuation Classes.  
*The Educational News*, New Series, Vol. II, No. 89 (11 Sept. 1908) pp. 999-1000.
- 105 Western Teaching for China.

*Nature*, Vol. 80, No. 2056 (25 March 1909) pp. 99-100.

106 Education and National Life.

*The Glasgow Herald* (15 Oct. 1909) p. 14, c. 8.

107 Commercial Education in Japan.

*The Glasgow Herald* (26 Nov. 1910) p. 4, c. 6.

108 Present-Day Problems in Education.

*The Glasgow Herald* (30 Sept. 1911) p. 10, c. 5-6.

109 Educational Co-ordination.

*The Educational News*, No. 36 (8 Dec. 1911) pp. 1223-1224.

110 The Far East, Engineering and Commerce.

*The Glasgow Herald* (29 Dec. 1911) p. 37, c. 2-3.

111 Education and Industrial Legislation.

*The Glasgow Herald* (16 Mar. 1912) p. 12, c. 2.

112 Eastern Trade, Engineering in Japan and China.

*The Glasgow Herald* (31 Dec. 1912) p. 37, c. 1-2.

Appendix II. List of Henry Dyer's Works by Topic and Year

Topic Year	Engineering Education	Engineering Research	Educational Reforms	Social Reforms	Studies on Japan	Others
1873						1
74						
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